

Patent: ONT-101

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (previously presented) A container for selectably changing the temperature of its contents by mixing a first reactant with a second reactant, comprising:

a container body having a material chamber for containing said contents;

a thermic module connected to one end of said container body and extending at least partially into said container body, an opposite end of said container body having a container opening into said material chamber, said thermic module comprising an actuator, a piercing member movable between a retracted position and an extended position in response to a force placed on a portion of said actuator, a breakable barrier, and first and second chambers for containing said reactants separated from one another by said breakable barrier, wherein a distal end of said piercing member breaks said breakable barrier when said elongated member is in said extended position to allow mixing of said reactants;

a full panel pull-off mounted to one of said thermic module or to said one end of said container, said full panel pull-off completely covering said actuator, said full panel pull-off having a removable pull-off lid, said full panel pull-off having sufficient strength and rigidity to prevent actuation of said actuator until said pull-off lid is first removed; and

a lid mounted to said opposite end of said container body.

2. (previously presented) The container of claim 1 wherein said pull-off lid is removable by breaking the material connecting it to the remainder of the full panel pull-off.

3. (previously presented) The container of claim 1 wherein one of said chambers is a heat

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exchanger portion which extends proximally into the container body, said heat exchanger portion having a pleated wall and at least one circumferential groove on the edge of said pleated wall.

4. (previously presented) The container of claim 3 wherein said pleated wall has a plurality of folds around a circumference of said heat exchanger portion and said folds have radii of at least .05 inches.

5. (previously presented) The container of claim 1 wherein said first chamber is a heat exchanger portion which extends into said container body and said container further comprises a vent hole which completes a fluid path from said heat exchanger portion to the ambient atmosphere surrounding the exterior of said container while said full panel pull-off is installed.

6. (previously presented) The container of claim 5 wherein said thermic module comprises a thermic module cap disposed distal to said heat exchanger portion and wherein said fluid path extends from said heat exchanger portion between a wall of said container and a wall of said thermic module cap to said vent hole.

7. (previously presented) The container of claim 1 wherein said first chamber comprises a heat exchanger portion which extends proximally into said container body and a thermic module cap disposed distal to said heat exchanger portion, said thermic module cap comprising said second chamber, said breakable barrier and said piercing member.

8. (previously presented) The container of claim 7 wherein said breakable barrier comprises a sheet of material which is attached to said thermic module cap to enclose said second chamber.

9. (previously presented) The container of claim 7 wherein said breakable barrier is attached to a top surface of said thermic module cap and also to the outside walls extending from said top surface.

10. (previously presented) The container of claim 1 wherein said container body has in

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internal side wall and an external side wall and said external side wall has a groove extending from at or near the bottom of said container body up the side of said external side wall in a helical shape.

11. (previously presented) A container for selectably changing the temperature of its contents by mixing a first reactant with a second reactant, comprising:

a container body having a material chamber for containing said contents and a container opening for removing said contents from said container body;

a thermic module thermally coupled to said container body, an opposite end of said container body having a container opening into said material chamber, said thermic module comprising an actuator, and first and second chambers for containing said reactants separated from one another until the actuator is actuated,

wherein said first reactant comprises calcium oxide particles in which between 10% and 20% of said particles filter through a #20 mesh.

12. (currently amended) The container of claim 11 wherein said calcium oxide particles comprise a mixture of calcium oxide particles of differing sizes in which between 10% and 20 % of particles filter through a #20 mesh; between 75% and 85% of particles filter through a #14 mesh and less than 3% of particles filter through a mesh finer than a #20 mesh.

13. (previously presented) A container for selectably changing the temperature of its contents by mixing water and calcium oxide particles, comprising:

a container body having a material chamber for containing said contents and a container opening for removing said contents from said container body;

a thermic module thermally coupled to said container body, an opposite end of said container body having a container opening into said material chamber, said thermic module

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comprising an actuator, and first and second chambers for containing said reactants separated from one another until the actuator is actuated,

wherein the ratio of water to calcium oxide by mass is about 1.15 parts water to 4 parts calcium oxide.

14. (previously presented) The container of claim 13 wherein said first reactant comprises calcium oxide particles in which between 10% and 20% of said particles filter through a #20 mesh.

15. (currently amended) The container of claim 13 wherein said calcium oxide particles comprise a mixture of calcium oxide particles of differing sizes in which between 10% and 20 % of particles filter through a #20 mesh; between 75% and 85% of particles filter through a #14 mesh and less than 3% of particles filter through a mesh finer than a #20 mesh.

16. (previously presented) A method of selectably changing the temperature of the contents of a container comprising the steps of:

providing said container thermally coupled with a thermic module having first and second reactants;

removing a pull-off lid of a full panel pull-off mounted to said container; said full panel pull-off having sufficient strength and rigidity to prevent actuation of an actuator until said pull-off lid is first removed;

actuating said actuator to cause the mixing of said first and second reactants.

17. (previously presented) The method of claim 16 wherein said first reactant comprises water and said second reactant comprises calcium oxide particles.

18. (previously presented) The method of claim 17 wherein said first reactant comprises calcium oxide particles in which between 10% and 20% of said particles filter through a #20

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mesh.

19. (previously presented) The method of claim 17 wherein said calcium oxide particles comprise a mixture of calcium oxide particles of differing sizes in which between 10% and 20 % of particles filter through a #20 mesh; between 75% and 85% of particles filter through a #14 mesh and less than 3% of particles filter through a #20 mesh.

20. (previously presented) The method of claim 17 wherein the ratio of water to calcium oxide by mass is about 1.15 parts water to 4 parts calcium oxide.

21. (previously presented) A container for selectably changing the temperature of its contents by mixing a first reactant with a second reactant, comprising:

container body having a material chamber for containing said contents;

a thermic module connected to one end of said container body and extending at least partially into said container body, an opposite end of said container body having a container opening into said material chamber, said thermic module comprising an actuator, a piercing member movable between a retracted position and an extended position in response to a force placed on a portion of said actuator, a breakable barrier, and first and second chambers for containing said reactants separated from one another by said breakable barrier, wherein a distal end of said piercing member breaks said breakable barrier when said elongated member is in said extended position to allow mixing of said reactants;

a full panel pull-off mounted to one of said thermic module or to said one end of said container, said full panel pull-off completely covering said actuator, said full panel pull-off having a removable pull-off lid, said full panel pull-off having sufficient strength and rigidity to prevent actuation of said actuator until said pull-off lid is first removed; and

a lid mounted to said opposite end of said container body.

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22. (previously presented) The container of claim 8 wherein said breakable barrier is attached to said thermic module cap by one of thermal bonding, ultrasonic bonding or use of an adhesive.

23. (previously presented) The container of claim 8 wherein said breakable barrier is attached to said thermic module cap by thermal bonding and the thermal bonding process creates a radiused edge on a top surface of said thermic module cap.

24. (previously presented) The container of claim 1 further comprising a visual indicator which indicates that the indicator has reached a predetermined temperature.

25. (previously presented) The container of claim 24 wherein said visual indicator comprises a spot of thermochromatic ink on the surface of said container.

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Listing of Claims:

1. (original) A container for selectably changing the temperature of its contents by mixing a first reactant with a second reactant, comprising:

a container body having a material chamber for containing said contents;

a thermic module connected to one end of said container body and extending at least partially into said container body, an opposite end of said container body having a container opening into said material chamber, said thermic module comprising an actuator, a piercing member movable between a retracted position and an extended position in response to a force placed on a portion of said actuator, a breakable barrier, and first and second chambers for containing said reactants separated from one another by said breakable barrier, wherein a distal end of said piercing member breaks said breakable barrier when said elongated member is in said extended position to allow mixing of said reactants;

a full panel pull-off mounted to one of said thermic module or to said one end of said container, said full panel pull-off completely covering said actuator, said full panel pull-off having a removable pull-off lid, said full panel pull-off having sufficient strength and rigidity to prevent actuation of said actuator until said pull-off lid is first removed; and

a lid mounted to said opposite end of said container body.

2. (original) The container of claim 1 wherein said pull-off lid is removable by breaking the material connecting it to the remainder of the full panel pull-off.

3. (original) The container of claim 1 wherein one of said chambers is a heat exchanger portion

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which extends proximally into the container body, said heat exchanger portion having a pleated wall and at least one circumferential groove on the edge of said pleated wall.

4. (original) The container of claim 3 wherein said pleated wall has a plurality of folds around a circumference of said heat exchanger portion and said folds have radii of at least .05 inches.

5. (original) The container of claim 1 wherein said first chamber is a heat exchanger portion which extends into said container body and said container further comprises a vent hole which completes a fluid path from said heat exchanger portion to the ambient atmosphere surrounding the exterior of said container while said full panel pull-off is installed.

6. (original) The container of claim 5 wherein said thermic module comprises a thermic module cap disposed distal to said heat exchanger portion and wherein said fluid path extends from said heat exchanger portion between a wall of said container and a wall of said thermic module cap to said vent hole.

7. (original) The container of claim 1 wherein said first chamber comprises a heat exchanger portion which extends proximally into said container body and a thermic module cap disposed distal to said heat exchanger portion, said thermic module cap comprising said second chamber, said breakable barrier and said piercing member.

8. (original) The container of claim 7 wherein said breakable barrier comprises a sheet of material which is attached to said thermic module cap to enclose said second chamber.

9. (original) The container of claim 7 wherein said breakable barrier is attached to a top surface of said thermic module cap and also to the outside walls extending from said top surface.

10. (original) The container of claim 1 wherein said container body has an internal side wall and an external side wall and said external side wall has a groove extending from at or near the bottom of said container body up the side of said external side wall in a helical shape.

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11. (currently amended) A container for selectably changing the temperature of its contents by mixing a first reactant with a second reactant, comprising:

a container body having a material chamber for containing said contents and a container opening for removing said contents from said container body;

a thermic module thermally coupled to said container body, an opposite end of said container body having a container opening into said material chamber, said thermic module comprising an actuator, and first and second chambers for containing said reactants separated from one another until the actuator is actuated,

wherein said first reactant comprises calcium oxide particles in which at least 75% of said particles filter through a #7 mesh and are captured by a #14 mesh ~~between 10% and 20% of said particles filter through a #20 mesh.~~

12. (currently amended) The container of claim 11 wherein said calcium oxide particles comprise a mixture of calcium oxide particles of differing sizes in which at least 75% of said particles filter through a #7 mesh and are captured by a #14 mesh ~~between 10% and 20 % of particles filter through a #20 mesh; between 75% and 85% of particles filter through a #14 mesh and less than 3% of particles filter through a mesh finer than a #20 mesh.~~

13. (previously presented) A container for selectably changing the temperature of its contents by mixing water and calcium oxide particles, comprising:

a container body having a material chamber for containing said contents and a container opening for removing said contents from said container body;

a thermic module thermally coupled to said container body, an opposite end of said container body having a container opening into said material chamber, said thermic module comprising an actuator, and first and second chambers for containing said reactants separated

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from one another until the actuator is actuated,

wherein the ratio of water to calcium oxide by mass is about 1.15 parts water to 4 parts calcium oxide.

14. (currently amended) The container of claim 13 wherein said first reactant comprises calcium oxide particles in which at least 75% of said particles filter through a #7 mesh and are captured by a #14 mesh ~~between 10% and 20% of said particles filter through a #20 mesh.~~

15. (currently amended) The container of claim 13 wherein said calcium oxide particles comprise a mixture of calcium oxide particles of differing sizes in which at least 75% of said particles filter through a #7 mesh and are captured by a #14 mesh ~~between 10% and 20% of particles filter through a #20 mesh; between 75% and 85% of particles filter through a #14 mesh and less than 3% of particles filter through a mesh finer than a #20 mesh.~~

16. (original) A method of selectably changing the temperature of the contents of a container comprising the steps of:

providing said container thermally coupled with a thermic module having first and second reactants;

removing a pull-off lid of a full panel pull-off mounted to said container; said full panel pull-off having sufficient strength and rigidity to prevent actuation of an actuator until said pull-off lid is first removed;

actuating said actuator to cause the mixing of said first and second reactants.

17. (original) The method of claim 16 wherein said first reactant comprises water and said second reactant comprises calcium oxide particles.

18. (currently amended) The method of claim 17 wherein said first reactant comprises calcium oxide particles in which at least 75% of said particles filter through a #7 mesh and are

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captured by a #14 mesh between 10% and 20% of said particles filter through a #20 mesh.

19. (currently amended) The method of claim 17 wherein said calcium oxide particles comprise a mixture of calcium oxide particles of differing sizes in which at least 75% of said particles filter through a #7 mesh and are captured by a #14 mesh between 10% and 20% of particles filter through a #20 mesh; between 75% and 85% of particles filter through a #14 mesh and less than 3% of particles filter through a #20 mesh.

20. (original) The method of claim 17 wherein the ratio of water to calcium oxide by mass is about 1.15 parts water to 4 parts calcium oxide.

21. (original) A container for selectably changing the temperature of its contents by mixing a first reactant with a second reactant, comprising:

container body having a material chamber for containing said contents;

a thermic module connected to one end of said container body and extending at least partially into said container body, an opposite end of said container body having a container opening into said material chamber, said thermic module comprising an actuator, a piercing member movable between a retracted position and an extended position in response to a force placed on a portion of said actuator, a breakable barrier, and first and second chambers for containing said reactants separated from one another by said breakable barrier, wherein a distal end of said piercing member breaks said breakable barrier when said elongated member is in said extended position to allow mixing of said reactants;

a full panel pull-off mounted to one of said thermic module or to said one end of said container, said full panel pull-off completely covering said actuator, said full panel pull-off having a removable pull-off lid, said full panel pull-off having sufficient strength and rigidity to prevent actuation of said actuator until said pull-off lid is first removed; and

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a lid mounted to said opposite end of said container body.

22. (original) The container of claim 8 wherein said breakable barrier is attached to said thermic module cap by one of thermal bonding, ultrasonic bonding or use of an adhesive.

23. (original) The container of claim 8 wherein said breakable barrier is attached to said thermic module cap by thermal bonding and the thermal bonding process creates a radiused edge on a top surface of said thermic module cap.

24. (original) The container of claim 1 further comprising a visual indicator which indicates that the indicator has reached a predetermined temperature.

25. (original) The container of claim 24 wherein said visual indicator comprises a spot of thermochromatic ink on the surface of said container.